

Claims

What is claimed is:

1. A driving device of an ink-jet print head that discharges liquid drops through a plurality of nozzles, comprising:

a data storage unit, which stores a data block for liquid drop discharge;

a data determination unit, which determines the stored data block;

a shift register, which outputs the determined data block to the ink-jet print head;

and

a clock signal generation unit, which generates clock signals for driving the shift register;

wherein:

the data determination unit determines whether the data block has a predetermined array;

when the data block has the predetermined array, the clock signal generation unit stops generating the clock signals; and

the shift register outputs the data block having the predetermined array to the ink-jet print head.

2. The driving device of an ink-jet print head according to Claim 1, wherein:

the data determination unit determines whether all the data items of the data block are one of discharge data items for which liquid drops are to be discharged, and non-discharge data items for which liquid drops are not to be discharged;

the clock signal generation unit stops generating the clock signals when all the data items of the data block are one of the discharge data items and the non-discharge data items; and

the shift register outputs one of the discharge data items and the non-discharge data items to the ink-jet print head when the generation of the clock signals is stopped.

3. The driving device of an ink-jet print head according to Claim 2, wherein:

the plurality of nozzles are provided in every block having a predetermined number of the nozzles, and a plurality of data determination units are provided in the corresponding blocks.

4. A control method of a driving device of an ink-jet print head that discharges liquid drops through a plurality of nozzles, comprising:

a data storage step of storing a data block for liquid drop discharge;

a data determination step of determining the stored data block;

a data output step of outputting the determined data block to the ink-jet print head via a shift resistor; and

a clock signal generation step of generating clock signals for driving the shift register;

wherein:

the data determination step further comprises determining whether the data block has a predetermined array; and

the clock signal generation step further comprises stopping a generation of the clock signals when the data block has the predetermined array.

5. The control method of a driving device of an ink-jet print head according to Claim 4, wherein:

the data determination step further comprises determining whether all the data items of the data block are one of discharge data items for which liquid drops are to be discharged, and non-discharge data items for which liquid drops are not to be discharged;

the clock signal generation step further comprises stopping a generation of the clock signals when all the data items of the data block are one of the discharge data items and the non-discharge data items; and

the data block output step further comprises outputting one of the discharge data items and the non-discharge data items to the ink-jet print head when the generation of the clock signals is stopped.

6. A liquid drop discharge apparatus comprising:

a driving device of an ink-jet print head according to Claim 1, and

a print head having a control unit that drives the plurality of nozzles based on the data block output from the driving device.